

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-80. (Canceled).

81. (Currently Amended) A heat exchange system comprising:
~~a direct expansion geothermal heat exchange system having an operational working pressure and including:~~
a compressor operable in at least heating and cooling modes;
an ~~the~~ interior heat exchanger;
an exterior, sub-surface, heat exchanger, the exterior heat exchanger being positioned at a lower elevation than the compressor;
refrigerant grade tubing connecting the interior heat exchanger and the exterior, sub-surface, heat exchanger with the compressor;
a system refrigerant charging the system, wherein the system refrigerant has a working pressure at least 33% greater than a working pressure of R-22 refrigerant; and
wherein the ~~system~~ compressor is configured to pressurize the refrigerant ~~operates with at~~ at a continuous operational pressure at least 33% greater than the working pressure of R-22 refrigerant in both the heating and cooling modes.

82. (Previously Presented) The system of claim 81 wherein the system refrigerant comprises R-410A refrigerant.

83. (Previously Presented) The method of claim 82 further comprising a polyol ester lubricating oil positioned to lubricate the compressor.

84. (Previously Presented) The method of claim 81 further comprising providing a filter dryer that has been oversized by a factor of at least 10% above the size of a filter dryer used in an R-22 based system.

85. (Currently Amended) A method of exchanging heat in a direct expansion geothermal heat exchange system, comprising:

providing a compressor operable in at least heating and cooling modes;

providing an above-ground, interior heat exchanger;

providing a sub-surface, exterior heat exchanger positioned at a lower elevation than the compressor;

operably connecting the interior and exterior heat exchangers to ~~[[a]]~~ the compressor using refrigerant-grade tubing;

charging the geothermal heat exchange system with a system refrigerant having a working pressure at least 33% greater than a working pressure of R-22 refrigerant; and

operating the compressor to pressurize the system refrigerant at a continuous operational pressure at least 33% greater than the working pressure of R-22 refrigerant in both the heating and cooling modes ~~to maintain the geothermal heat exchange system at a continuous operational pressure substantially equal to the working pressure of the refrigerant.~~

86. (Previously Presented) The method of claim 85 wherein the system refrigerant comprises an R-410A refrigerant.

87. (Previously Presented) The method of claim 86 further comprising providing a polyol ester lubricating oil for the compressor.

88. (Previously Presented) The method of claim 87 in which the geothermal heat exchange system has a heat exchange capacity, the method further comprising providing a filter dryer in fluid communication with both the interior and exterior heat exchangers, wherein the filter dryer is oversized by a factor of at least 10% in comparison to the size of a filter dryer used in an R-22 based system having a similar heat exchange capacity.

89-92. (Canceled).

93. (Currently Amended) A direct expansion geothermal heat exchange system having an operational pressure and a heat exchange capacity, the geothermal heat exchange system including:

a compressor operable in at least heating and cooling modes;

a polyol ester lubricating oil positioned to lubricate the compressor;

an interior heat exchanger;

a filter dryer in fluid communication with the interior heat exchanger, the filter dryer being oversized by a factor of at least 10% in comparison to a size of a filter dryer used in an R-22 based system having a similar heat exchange capacity;

an exterior, sub-surface, heat exchanger, the exterior heat exchanger being positioned at a lower elevation than the compressor;

refrigerant grade tubing connecting the interior heat exchanger and the exterior, sub-surface, heat exchanger with the compressor;

a system refrigerant charging the system, wherein the system refrigerant has a working pressure at least 33% greater than a working pressure of R-22 refrigerant; and

wherein the compressor is configured to pressurize the system refrigerant to a continuous operational pressure at least 33% greater than the working pressure of R-22 refrigerant in both the heating and cooling modes ~~sized to continuously maintain the operational pressure of the geothermal heat exchange system at the working pressure of the refrigerant.~~

94. (Previously Presented) The system of claim 93 in which the system refrigerant comprises R-410A refrigerant.

95. (Currently Amended) A direct expansion geothermal heat exchange system having an operational pressure and a heat exchange capacity, the geothermal heat exchange system including:

a compressor;

an interior heat exchanger; ~~and~~

an exterior, sub-surface heat exchanger, the exterior heat exchanger being positioned at a lower elevation than the compressor;

refrigerant grade tubing connecting the interior heat exchanger and the exterior heat exchanger with the compressor;

a system refrigerant charging the system, wherein the system refrigerant is an R-410A refrigerant having a working pressure at least 33% greater than a working pressure of R-22 refrigerant; and

a polyol ester lubricating oil positioned to lubricate the compressor;

wherein the compressor, interior and exterior heat exchangers, and refrigerant grade tubing are configured to withstand a system operational pressure at least 33% greater than a working pressure of R-22 refrigerant; and

wherein the compressor is configured to pressurize the system refrigerant to a continuous operational pressure at least 33% greater than the working pressure of R-22 refrigerant in both the heating and cooling modes.

96. (Previously Presented) The system of claim 95 in which the system has a filter dryer in fluid communication with the interior heat exchanger, the filter dryer being oversized by a factor of at least 10% in comparison to a size of a filter dryer used in an R-22 based system having a similar heat exchange capacity;